CLAIM AMENDMENTS

1-48. (canceled)

49. (new) A method of creating a data sequence that includes a plurality of data frames, comprising:

placing a first training sequence at a beginning of a first data frame;

placing a first plurality of turbo encoded data blocks within the first data frame following the first training sequence;

interspersing a first plurality of submarkers within the first plurality of turbo encoded data blocks according to a first submarker spacing;

placing a second training sequence at a beginning of a second data frame;

placing a second plurality of turbo encoded data blocks within the second data frame following the second training sequence; and

interspersing a second plurality of submarkers within the second plurality of turbo encoded data blocks according to a second submarker spacing.

50. (new) The method of claim 49, wherein:

the first data frame comprises a first plurality of symbols that is modulated according to a first modulation; and

the second data frame comprises a second plurality of symbols that is modulated according to a second modulation.

51. (new) The method of claim 49, wherein:

the first data frame comprises a first plurality of symbols that is modulated according to an 8 PSK modulation; and

the second data frame comprises a second plurality of symbols that is modulated according to a QPSK modulation.

52. (new) The method of claim 49, wherein:

the first data frame comprises a first plurality of symbols that is encoded using a first code rate; and

the second data frame comprises a second plurality of symbols that is encoded using a second code rate.

53. (new) The method of claim 49, wherein:

a first turbo encoded data block of the first plurality of turbo encoded data blocks comprises a first plurality of symbols that is encoded using a first code rate; and

a second turbo encoded data block of the first plurality of turbo encoded data blocks comprises a second plurality of symbols that is encoded using a second code rate.

54. (new) The method of claim 49, wherein:

each submarker of the first plurality of submarkers has a first size; and

each submarker of the second plurality of submarkers has a second size.

55. (new) The method of claim 49, wherein:

a first submarker of the first plurality of submarkers has a first size; and

a second submarker of the first plurality of submarkers has a second size.

56. (new) The method of claim 49, wherein:

the first submarker spacing provides that the first plurality of submarkers is substantially evenly distributed among the first plurality of turbo encoded data blocks according to a first distribution; and

the second submarker spacing provides that the second plurality of submarkers is substantially evenly distributed among the second plurality of turbo encoded data blocks according to a second distribution.

57. (new) The method of claim 49, wherein:

the first data frame has a first frame length; and

the second data frame has a second frame length.

58. (new) The method of claim 49, further comprising:

copying at least a portion of the first training sequence at the beginning of the first data frame; and

interspersing the copied at least a portion of the first training sequence between each turbo encoded data block of the first plurality of turbo encoded data blocks.

59. (new) The method of claim 49, further comprising:

copying the first training sequence at the beginning of the first data frame; and

interspersing the copied first training sequence between each turbo encoded data block of the first plurality of turbo encoded data blocks.

60. (new) The method of claim 49, further comprising:

copying at least a portion of the first training sequence at the beginning of the first data frame;

interspersing the copied at least a portion of the first training sequence between each turbo encoded data block of the first plurality of turbo encoded data blocks;

copying at least a portion of the second training sequence at the beginning of the second data frame; and

interspersing the copied at least a portion of the second training sequence between each turbo encoded data block of the second plurality of turbo encoded data blocks.

61. (new) The method of claim 49, further comprising:

copying the first training sequence at the beginning of the first data frame;

interspersing the copied first training sequence between each turbo encoded data block of the first plurality of turbo encoded data blocks;

copying the second training sequence at the beginning of the second data frame; and

interspersing the copied second training sequence between each turbo encoded data block of the second plurality of turbo encoded data blocks.

62. (new) A method of creating a data sequence, comprising:

creating a data frame comprising a first portion and a second portion, wherein the first portion precedes the second portion in time;

placing a training sequence at a beginning of the first portion of the data frame;

placing a first plurality of turbo encoded data blocks within the first portion of the data frame following the training sequence;

interspersing a first plurality of submarkers within the first plurality of turbo encoded data blocks according to a first submarker spacing;

placing a second plurality of turbo encoded data blocks within the second portion of the data frame; and

interspersing a second plurality of submarkers within the second plurality of turbo encoded data blocks according to a second submarker spacing.

63. (new) The method of claim 62, wherein:

the first portion of the data frame comprises a first plurality of symbols that is modulated according to a first modulation; and

the second portion of the data frame comprises a second plurality of symbols that is modulated according to a second modulation.

64. (new) The method of claim 62, wherein:

the first portion of the data frame comprises a first plurality of symbols that is modulated according to an 8 PSK modulation; and

the second portion of the data frame comprises a second plurality of symbols that is modulated according to a QPSK modulation.

65. (new) The method of claim 62, wherein:

the first portion of the data frame comprises a first plurality of symbols that is encoded using a first code rate; and

the second portion of the data frame comprises a second plurality of symbols that is encoded using a second code rate.

66. (new) The method of claim 62, wherein:

a first turbo encoded data block of the first plurality of turbo encoded data blocks comprises a first plurality of symbols that is encoded using a first code rate; and

a second turbo encoded data block of the first plurality of turbo encoded data blocks comprises a second plurality of symbols that is encoded using a second code rate.

67. (new) The method of claim 62, wherein:

each submarker of the first plurality of submarkers has a first size; and

each submarker of the second plurality of submarkers has a second size.

68. (new) The method of claim 62, wherein:

a first submarker of the first plurality of submarkers has a first size; and

a second submarker of the first plurality of submarkers has a second size.

69. (new) The method of claim 62, wherein:

the first submarker spacing provides that the first plurality of submarkers is substantially evenly distributed among the first plurality of turbo encoded data blocks according to a first distribution; and

the second submarker spacing provides that the second plurality of submarkers is substantially evenly distributed among the second plurality of turbo encoded data blocks according to a second distribution.

70. (new) The method of claim 62, wherein:

the first portion of the data frame has a first length; and

the second portion of the data frame has a second length.

71. (new) The method of claim 62, further comprising:

copying at least a portion of the training sequence at the beginning of the first portion of the data frame; and

interspersing the copied at least a portion of the training sequence between each turbo encoded data block of at least one of the first plurality of turbo encoded data blocks and the second plurality of turbo encoded data blocks.

72. (new) The method of claim 62, further comprising:

copying the training sequence at the beginning of the first portion of the data frame; and

interspersing the copied training sequence between each turbo encoded data block of at least one of the first plurality of turbo encoded data blocks and the second plurality of turbo encoded data blocks.

73. (new) A training sequence and submarker insertion apparatus, the apparatus comprising:

an input that is operable to receive a first plurality of turbo encoded data blocks and a second plurality of turbo encoded data blocks; and

an inserter that is operable to:

place a first training sequence at a beginning of a first data frame;

place the first plurality of turbo encoded data blocks within the first data frame following the first training sequence;

intersperse a first plurality of submarkers within the first plurality of turbo encoded data blocks according to a first submarker spacing;

place a second training sequence at a beginning of a second data frame;

place the second plurality of turbo encoded data blocks within the second data frame following the second training sequence; and

intersperse a second plurality of submarkers within the second plurality of turbo encoded data blocks according to a second submarker spacing.

74. (new) The apparatus of claim 73, wherein:

the first data frame comprises a first plurality of symbols that is modulated according to a first modulation; and

the second data frame comprises a second plurality of symbols that is modulated according to a second modulation.

75. (new) The apparatus of claim 73, wherein:

the first data frame comprises a first plurality of symbols that is modulated according to an 8 PSK modulation; and

the second data frame comprises a second plurality of symbols that is modulated according to a QPSK modulation.

76. (new) The apparatus of claim 73, wherein:

the first data frame comprises a first plurality of symbols that is encoded using a first code rate; and

the second data frame comprises a second plurality of symbols that is encoded using a second code rate.

77. (new) The apparatus of claim 73, wherein:

a first turbo encoded data block of the first plurality of turbo encoded data blocks comprises a first plurality of symbols that is encoded using a first code rate; and

a second turbo encoded data block of the first plurality of turbo encoded data blocks comprises a second plurality of symbols that is encoded using a second code rate.

78. (new) The apparatus of claim 73, wherein:

each submarker of the first plurality of submarkers has a first size; and

each submarker of the second plurality of submarkers has a second size.

79. (new) The apparatus of claim 73, wherein:

a first submarker of the first plurality of submarkers has a first size; and

a second submarker of the first plurality of submarkers has a second size.

80. (new) The apparatus of claim 73, wherein:

the first submarker spacing provides that the first plurality of submarkers is substantially evenly distributed among the first plurality of turbo encoded data blocks according to a first distribution; and

the second submarker spacing provides that the second plurality of submarkers is substantially evenly distributed among the second plurality of turbo encoded data blocks according to a second distribution.

81. (new) The apparatus of claim 73, wherein:

the first data frame has a first frame length; and

the second data frame has a second frame length.

82. (new) The apparatus of claim 73, wherein the inserter is operable to:

copy at least a portion of the first training sequence at the beginning of the first data frame; and

intersperse the copied at least a portion of the first training sequence between each turbo encoded data block of the first plurality of turbo encoded data blocks.

83. (new) The apparatus of claim 73, wherein the inserter is operable to:

copy the first training sequence at the beginning of the first data frame; and

intersperse the copied first training sequence between each turbo encoded data block of the first plurality of turbo encoded data blocks.

84. (new) The apparatus of claim 73, wherein the inserter is operable to:

copy at least a portion of the first training sequence at the beginning of the first data frame;

intersperse the copied at least a portion of the first training sequence between each turbo encoded data block of the first plurality of turbo encoded data blocks;

copy at least a portion of the second training sequence at the beginning of the second data frame; and

intersperse the copied at least a portion of the second training sequence between each turbo encoded data block of the second plurality of turbo encoded data blocks.

85. (new) The apparatus of claim 73, wherein the inserter is operable to:

copy the first training sequence at the beginning of the first data frame;

intersperse the copied first training sequence between each turbo encoded data block of the first plurality of turbo encoded data blocks;

copy the second training sequence at the beginning of the second data frame; and

intersperse the copied second training sequence between each turbo encoded data block of the second plurality of turbo encoded data blocks.

86. (new) A training sequence and submarker insertion apparatus, the apparatus comprising:

an input that is operable to receive a first plurality of turbo encoded data blocks and a second plurality of turbo encoded data blocks; and

an inserter that is operable to:

create a data frame comprising a first portion and a second portion, wherein the first portion precedes the second portion in time;

place a training sequence at a beginning of the first portion of the data frame;

place the first plurality of turbo encoded data blocks within the first portion of the data frame following the training sequence;

intersperse a first plurality of submarkers within the first plurality of turbo encoded data blocks according to a first submarker spacing;

place the second plurality of turbo encoded data blocks within the second portion of the data frame; and

intersperse a second plurality of submarkers within the second plurality of turbo encoded data blocks according to a second submarker spacing.

87. (new) The apparatus of claim 86, wherein:

the first portion of the data frame comprises a first plurality of symbols that is modulated according to a first modulation; and

the second portion of the data frame comprises a second plurality of symbols that is modulated according to a second modulation.

88. (new) The apparatus of claim 86, wherein:

the first portion of the data frame comprises a first plurality of symbols that is modulated according to an 8 PSK modulation; and

the second portion of the data frame comprises a second plurality of symbols that is modulated according to a QPSK modulation.

89. (new) The apparatus of claim 86, wherein:

the first portion of the data frame comprises a first plurality of symbols that is encoded using a first code rate; and

the second portion of the data frame comprises a second plurality of symbols that is encoded using a second code rate.

90. (new) The apparatus of claim 86, wherein:

a first turbo encoded data block of the first plurality of turbo encoded data blocks comprises a first plurality of symbols that is encoded using a first code rate; and

a second turbo encoded data block of the first plurality of turbo encoded data blocks comprises a second plurality of symbols that is encoded using a second code rate.

91. (new) The apparatus of claim 86, wherein:

each submarker of the first plurality of submarkers has a first size; and

each submarker of the second plurality of submarkers has a second size.

92. (new) The apparatus of claim 86, wherein:

a first submarker of the first plurality of submarkers has a first size; and

a second submarker of the first plurality of submarkers has a second size.

93. (new) The apparatus of claim 86, wherein:

the first submarker spacing provides that the first plurality of submarkers is substantially evenly distributed among the first plurality of turbo encoded data blocks according to a first distribution; and

the second submarker spacing provides that the second plurality of submarkers is substantially evenly distributed among the second plurality of turbo encoded data blocks according to a second distribution.

94. (new) The apparatus of claim 86, wherein:

the first portion of the data frame has a first length; and

the second portion of the data frame has a second length.

95. (new) The apparatus of claim 86, wherein the inserter is operable to:

copy at least a portion of the training sequence at the beginning of the first portion of the data frame; and

intersperse the copied at least a portion of the training sequence between each turbo encoded data block of at least one of the first plurality of turbo encoded data blocks and the second plurality of turbo encoded data blocks.

96. (new) The apparatus of claim 86, wherein the inserter is operable to:

copy the training sequence at the beginning of the first portion of the data frame; and

intersperse the copied training sequence between each turbo encoded data block of at least one of the first plurality of turbo encoded data blocks and the second plurality of turbo encoded data blocks.